

REMARKS

In view of the above amendments and arguments submitted herewith, Applicants respectfully submit that the pending application is in condition for allowance.

I. Status of the Claims

Claims 1 and 18-20 are currently pending. Claim 1 has been amended to specify that the an air supply portion is connected to a position upstream of said reformer in a flow of the fuel and connected to a position between said carbon monoxide removing portion and said fuel cell in the flow of fuel, such that the air supply portion may be configured to supply air to at least one of the position upstream of said reformer in a flow of the fuel and the position between said carbon monoxide removing portion and said fuel cell in the flow of the fuel, to change “adsorbing portion” to “absorbing portion,” and to specify that the impurity removing means is configured to remove an impurity gas from the air supplied from the air supply portion to at least one of the position upstream of said reformer and the position between said carbon monoxide removing portion and said fuel cell. Support for these amendments can be found, for example, on page 13, paragraph [0050] through page 14, paragraph [0051] of the specification and in the original listing of claims. Claim 20 has been amended to independent form with the proper antecedent basis for “said sulfur oxide absorbing portion” and to change the recitation of “catalytic combustor disposed upstream of the sulfur oxide adsorbing portion and configured to ...” to “catalytic combustor configured to” Support for claim 20 can be found, for example, on page 18, paragraph [0067] and page 13, paragraph [0050] through page 14, paragraph [0051] of the specification and in the original listing of claims. No new matter has been added by any amendment to the claims.

II. Rejections under 35 U.S.C. § 112

Claims 19 and 20 have been rejected under 35 U.S.C. § 112, second paragraph as being indefinite. In particular, the Examiner contends that there is insufficient antecedent basis for “said sulfur oxide adsorbing portion” in claims 19 and 20, which depend from claim 1. Claim 1 has been amended to change “adsorbing portion” to “absorbing portion” thereby providing antecedent basis for “said sulfur oxide absorbing portion” in presently pending claim 19. Claim

antecedent basis for “said sulfur oxide absorbing portion” in presently pending claim 19. Claim 20 has been rewritten to independent form with the proper antecedent basis for “said sulfur oxide absorbing portion.”

Claim 20 has also been objected to as being indefinite for reciting that the combustor, which is disposed upstream of the absorbing portion, functions as the absorbing portion. Therefore, the Examiner contends that it is uncertain how, if the catalytic combustor portion is upstream from the absorbing portion, the catalytic combustor is the absorbing portion. Claim 20 has been amended to remove the recitation that the catalytic combustor is upstream the absorbing portion. Accordingly, reconsideration and withdrawal of the objections to claims 19 and 20 are respectfully requested.

III. Rejections Under 35 U.S.C. § 103

1. Claims 1 and 18-20 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,551,732 (“Xu”) in view of U.S. Patent Application Publication No. 2004/0247985 (“Takebe”).

While not necessarily agreeing with the Examiner’s rejection or the arguments in support thereof, Applicants note that Takebe has an effective prior art date under 35 U.S.C. § 102(e) as of its filing date of April 8, 2004. However, the present application has an effective filing date of December 3, 2003, namely the filing date of Japanese Priority Application No. 2003-405016, so that Takebe is not prior art against the present application. In support of this contention, there is submitted herewith a verified English translation of the Japanese Priority Patent Application No. 2003-405016. It can be clearly seen that all of the pending claims are fully supported in the priority application, at least in paragraphs [0017], [0024], [0034] and [0040] of the specification and Fig. 1. Accordingly, reconsideration and withdrawal of the rejection of claims 1 and 18-20 based on Xu and Takebe are respectfully requested.

2. Claims 1 and 18-20 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Xu in view of U.S. Patent Application Publication No. 2002/0150805 (“Stenersen”) and U.S. Patent Application Publication No. 2003/0143129 (“Rabellino”) as evidenced by Takebe.

According to the Examiner, Xu teaches each and every element of claim 1, except for an impurity removing means for the air supply portion, such as (a) a sulfur oxide adsorbing portion and (b) a catalytic combustor disposed upstream of the sulfur oxide adsorbing portion and configured to oxidize hydrogen sulfide into sulfur oxide. However, the Examiner further contends that Stenersen discloses (a) a sulfur oxide adsorbing portion, and that Rabellino discloses (b) a catalytic combustor disposed upstream of the sulfur oxide adsorbing portion and configured to oxidize hydrogen sulfide into sulfur oxide. Applicants respectfully traverse this rejection.

Claim 1 recites, *inter alia*, as follows:

A fuel cell system comprising:

...
an air supply portion connected to a position upstream of said reformer in a flow of the fuel and connected to a position between said carbon monoxide removing portion and said fuel cell in the flow of fuel, such that the air supply portion may be configured to supply air to at least one of the position upstream of said reformer in a flow of the fuel and the position between said carbon monoxide removing portion and said fuel cell in the flow of the fuel; and
an impurity removing means configured to remove an impurity gas from the air supplied from the air supply portion to at least one of the position upstream of said reformer and the position between said carbon monoxide removing portion and said fuel cell, wherein the impurity removing means includes.... (Emphasis added).

As already acknowledged by the Examiner, Xu does not disclose an impurity removing means for the air supply portion. (See Office Action, page 8, lines 16-20). Moreover, Xu only discloses that air 100 enters the fuel cell system via a compressor 1, as shown in Fig. 1. Thus, Xu further fails to disclose an air supply portion connected to both “a position upstream of said reformer in a flow of the fuel and connected to a position between said carbon monoxide removing portion and said fuel cell in the flow of fuel,” as recited in amended claim 1.

Stenersen discloses a filter assembly for intake air of a fuel cell. The filter assembly 10 is configured to remove contaminants from atmospheric air 50 that enters the filter assembly 10 as dirty air to provide clean air that exits outlet 14 of the filter assembly 10. The clear air then

serves as intake air for the equipment 101. (See paragraphs [0039] and [0041], and Fig. 1). Moreover, Stenersen teaches that fuel cells are generally configured to have oxygen enter the fuel cell at the cathode (paragraph [0004]). However, Stenersen does not teach or suggest an air supply portion connected to and configured to supply air to a position other than the cathode of the fuel cell 102 or that particulate contaminants of air supplied to positions other than the cathode are removed by a filter. In other words, claim 1 recites “an air supply portion connected to a position upstream of said reformer in a flow of the fuel and connected to a position between said carbon monoxide removing portion and said fuel cell in the flow of fuel” and that the impurity removing means removes impurities from the air supplied to at least one of the positions upstream of the reformer or between the carbon monoxide removing portion and fuel cell. As such, Stenersen fails to cure the above-noted deficiencies of Xu in disclosing or suggesting each and every element of claim 1.

Rabellino discloses an air purification system to purify air while extending the life of purification units. The air purification system 100 includes an oxygen catalyst unit 200 for purifying, among others, sulfur containing compounds from the air. As best shown in Fig. 6, the air purification system 100 includes an air inlet 102 that feeds air to adsorption columns 150(1), 150(2) and 150(3). However, similar to Stenersen, Applicants can find no disclosure regarding an air supply portion connected to both “a position upstream of said reformer in a flow of the fuel and connected to a position between said carbon monoxide removing portion and said fuel cell,” and an impurity removing means that removes impurities from the air supplied to at least one of the positions upstream of the reformer or between the carbon monoxide removing portion and fuel cell. As such, Rabellino fails to cure the above-noted deficiencies of both Xu and Stenersen in disclosing or suggesting each and every element of claim 1.

Therefore, for the foregoing reasons, Applicants respectfully submit that neither Xu, Stenersen, nor Rabellino, discloses or suggests each and every element of claim 1. Claims 18 and 19 depend from independent claim 1, thus claims 18 and 19 should be allowable based at least upon their dependency from claim 1. Independent claim 20 includes substantially all of the subject matter of claim 1 and is therefore allowable for the same reasons as discussed above for independent claim 1. Accordingly, reconsideration and withdrawal of the rejection of claims 1

Application No. 10/561,778
Reply to Office Action of February 26, 2010

and 18-20 are respectfully requested.

In view of the foregoing amendments and remarks, it is respectfully submitted that the present application, including claims 1 and 18-20, is in condition for allowance and such action is respectfully requested.

Respectfully submitted,
HIDENOBU WAKITA ET AL.

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(Date)

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Attachment: Verified English translation of the Japanese Priority Patent Application No. 2003-405016.